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BOYER, RANDY	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/717,249	EVANS, MARTIN	
	Examiner	Art Unit	
	Randy Boyer	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges response filed 21 August 2007 containing amendments to the claims and remarks.

2. The previous rejection of claims 1-4, 9, 18, and 22 under 35 U.S.C. 102(b) is withdrawn in view of Applicant's arguments and amendments to the claims.

3. The previous rejections of claims 5-8, 10-17, 19-21, and 23-35 under 35 U.S.C. 103(a) are maintained.

4. Claims 1-4, 9, 18, and 22 are rejected under 35 U.S.C. 103(a).

5. Finally, new claims 36 and 37 are rejected under 35 U.S.C. 103(a). The rejections follow.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-6, 9, 18, 21, 22, 25, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andon (US 4082513). Alternatively, claims 1-6, 9, 18, 21, 22, 25, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andon (US 4082513) in view of Comardo (US 6132157).

10. With respect to claim 1, Andon discloses a mobile catalyst injection system comprising: (a) a transportable platform (i.e. bed of a "tank truck" or "tank car") (see Andon, column 2, lines 10-12); (b) a catalyst reservoir (i.e. holding area of the "tank truck" or "tank car") (see Andon, column 2, lines 10-12) coupled to the platform and

configured to be coupled to a fluid catalyst cracking storage tank (10); and (c) a flow control device (i.e. reservoir outlet port to be connected to fill valve (28)) coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet directly to the fluid catalyst cracking storage tank (10); wherein the transportable platform, catalyst reservoir, and flow control device comprise a self-contained mobile injection system.

Andon does not disclose wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit.

However, the person having ordinary skill in the art of catalyst injection systems would easily recognize from a complete reading of Andon that one could bypass the catalyst storage tank (10) of Andon in order to "control the flow of catalyst through the reservoir [i.e. "tank truck" or "tank car"] outlet directly to the fluid catalyst cracking unit," e.g. by delivery of the catalyst from the catalyst reservoir to carrier line (19) and then directly to the fluid catalyst cracking unit (see Andon, drawing).

Moreover, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Andon, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build

additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in modifying the system of Andon as described above because all that is involved is a simple bypass of the catalyst storage tank (10) and addition hopper (16) of Andon to deliver catalyst directly from the catalyst reservoir to the carrier line (19) of Andon and then directly to the fluid catalyst cracking unit (see Andon, drawing and accompanying text).

11. Alternatively, with respect to claim 1, Andon discloses a mobile catalyst injection system comprising: (a) a transportable platform (i.e. bed of a "tank truck" or "tank car") (see Andon, column 2, lines 10-12); (b) a catalyst reservoir (i.e. holding area of the "tank truck" or "tank car") (see Andon, column 2, lines 10-12) coupled to the platform and configured to be coupled to a fluid catalyst cracking storage tank; and (c) a flow control device (i.e. reservoir outlet port to be connected to fill valve (28)) coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet directly to the fluid catalyst cracking storage tank (10); wherein the transportable platform, catalyst reservoir, and flow control device comprise a self-contained mobile injection system.

Andon does not disclose wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit.

However, Comardo discloses a mobile catalyst injection system comprising: (a) a transportable platform (184); (b) a catalyst reservoir (202) coupled to the platform and configured to be coupled to a reactor (255); and (c) a flow control device (196, 198) coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet and directly to the reactor (255).

Therefore, from the prior art of catalyst injection systems it is known to have: (1) a transportable platform having a catalyst reservoir coupled thereto and configured to be coupled to a fluid cracking catalyst storage tank (Andon); and (2) a transportable platform having a catalyst reservoir coupled thereto and configured to be coupled to a reactor wherein the flow of catalyst is directed from the catalyst reservoir directly to the reactor (Comardo). Moreover, the person having ordinary skill in the art of catalyst injection systems could have combined the individual elements of Andon and Comardo to yield the catalyst injection system of Applicant's claim 1 with the results being entirely predictable – i.e. a mobile catalyst injection system being adapted to control the flow of catalyst through an outlet of the platform-coupled catalyst reservoir and directly to a fluid catalyst cracking unit. In this regard, Examiner notes that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. See *Leapfrog Enterprises Inc. v. Fisher-Price Inc.*, 82 USPQ.2d 1687 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, 82 USPQ.2d 1385, 1389 (U.S. 2007)).

Finally, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the

system of Andon, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited.

12. With respect to claim 2, Andon discloses wherein the platform is a trailer (see Andon, column 2, lines 11-12).

13. With respect to claim 3, Andon discloses wherein the platform is a container (see Andon, column 2, lines 11-12).

14. With respect to claim 4, Andon discloses wherein the platform is a railroad car (see Andon, column 2, lines 11-12).

15. With respect to claims 5 and 6, pallets and barges are known in the art to be substitute means for "trailers," "containers," and "railroad cars" for purposes of transporting material.

16. With respect to claim 9, Andon discloses a pressure control system (see Andon, column 2, lines 51-56) coupled to the platform (see Andon, column 2, lines 11-12). Moreover, Andon discloses wherein a pressure control system (see Andon, drawing and

accompanying text) is coupled to the catalyst storage tank (10) for controlling the pressure with the catalyst storage tank (10) and as a means of delivering catalyst to the downstream fluid catalyst cracking unit. Thus, the person having ordinary skill in the art of catalyst injection systems would recognize that such pressure control system could likewise be coupled to the platform and catalyst reservoir as a means of controlling pressure within the catalyst reservoir and delivering catalyst to the downstream fluid catalyst cracking unit.

17. With respect to claims 18 and 22, Andon discloses a mobile catalyst injection system comprising: (a) a trailer or container (i.e. bed of a "tank truck" or "tank car") (see Andon, column 2, lines 10-12); (b) a catalyst reservoir (i.e. holding area of the "tank truck" or "tank car") (see Andon, column 2, lines 10-12) coupled to the trailer and configured to be coupled to a fluid catalyst cracking storage tank (10); and (c) a flow control device (i.e. reservoir outlet port to be connected to fill valve (28)) coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet directly to the fluid catalyst cracking storage tank (10); wherein the trailer, catalyst reservoir, and flow control device comprise a self-contained mobile injection system.

Andon does not disclose wherein the catalyst injection system comprises a pressure control system coupled to the trailer and the catalyst reservoir; or wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit.

However, Andon discloses a pressure control system (column 2, lines 51-56) coupled to the trailer (column 2, lines 11-12). Moreover, Andon discloses wherein a pressure control system (see Andon, drawing and accompanying text) is coupled to the

catalyst storage tank (10) for controlling the pressure with the catalyst storage tank (10) and as a means of delivering catalyst to the downstream fluid catalyst cracking unit. Thus, the person having ordinary skill in the art of catalyst injection systems would recognize that such pressure control system could likewise be coupled to the trailer and catalyst reservoir as a means of controlling pressure within the catalyst reservoir and delivering catalyst to the downstream fluid catalyst cracking unit. Likewise, the person having ordinary skill in the art of catalyst injection systems would easily recognize from a complete reading of Andon that one could bypass the catalyst storage tank (10) of Andon in order to "control the flow of catalyst through the reservoir [i.e. "tank truck" or "tank car"] outlet directly to the fluid catalyst cracking unit," e.g. by delivery of the catalyst from the catalyst reservoir to carrier line (19) and then directly to the fluid catalyst cracking unit (see Andon, drawing).

Moreover, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Andon, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant

space to house additional (large) catalyst storage tanks might often be extremely limited.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in modifying the system of Andon as described above because all that is involved is a simple bypass of the catalyst storage tank (10) and addition hopper (16) of Andon to deliver catalyst directly from the catalyst reservoir to the carrier line (19) of Andon and then directly to the fluid catalyst cracking unit (see Andon, drawing and accompanying text).

18. With respect to claims 21 and 25, a mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *See* *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

19. With respect to claims 36 and 37, Andon discloses wherein the pressure control system is under automatic (i.e. computer) control (see Andon, entire disclosure).

20. Claims 7, 8, 10-12, 17, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson (US 4769127). Alternatively, claims 7, 8, 10-12, 17, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson (US 4769127) in view of Comardo (US 6132157).

21. With respect to claim 7, Erickson discloses a mobile catalyst injection system comprising: (a) a transportable platform (56); (b) a catalyst reservoir (400) coupled to the platform (56) and configured to be coupled to a catalyst storage tank (68); (c) a flow control device (422) coupled to an outlet of the reservoir (400) and adapted to control the flow of catalyst through the outlet; and (d) a generator (i.e. central processing unit

providing for automatic control of the system) (see Erickson, column 5, lines 62-68; and column 6, lines 1-2) coupled to the platform (56); wherein the transportable platform, catalyst reservoir, and flow control device comprise a self-contained mobile injection system (see Erickson, Fig. 3).

Erickson does not disclose wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit.

However, Erickson discloses wherein the system may be included as part of a reaction process for the refining (e.g. by way of cracking) of a petroleum feedstock in the presence of a fresh catalyst (see Erickson, column 3, lines 31-34; and column 6, lines 40-51). In addition, the person having ordinary skill in the art of catalyst injection systems would easily recognize from a complete reading of Erickson that one could modify the system of Erickson in order to "control the flow of catalyst through the reservoir outlet directly to [a] fluid catalyst cracking unit."

Moreover, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Erickson, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially

important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in modifying the system of Erickson as described above because all that is involved is the delivery of catalyst directly from the catalyst reservoir (400) to the reactor of Erickson (i.e. without first delivering the catalyst to the catalyst storage tank (68)).

22. Alternatively, with respect to claim 7, Erickson discloses a mobile catalyst injection system comprising: (a) a transportable platform (56); (b) a catalyst reservoir (400) coupled to the platform (56) and configured to be coupled to a catalyst storage tank (68); (c) a flow control device (422) coupled to an outlet of the reservoir (400) and adapted to control the flow of catalyst through the outlet; and (d) a generator (i.e. central processing unit providing for automatic control of the system) (see Erickson, column 5, lines 62-68; and column 6, lines 1-2) coupled to the platform (56); wherein the transportable platform, catalyst reservoir, and flow control device comprise a self-contained mobile injection system (see Erickson, Fig. 3).

Erickson does not disclose wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit.

However, Comardo discloses a mobile catalyst injection system comprising: (a) a transportable platform (184); (b) a catalyst reservoir (202) coupled to the platform and configured to be coupled to a reactor (255); and (c) a flow control device (196, 198)

coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet and directly to the reactor (255).

Therefore, from the prior art of catalyst injection systems it is known to have: (1) a transportable platform having a catalyst reservoir coupled thereto and configured to be coupled to a catalyst storage tank (Erickson); and (2) a transportable platform having a catalyst reservoir coupled thereto and configured to be coupled to a reactor wherein the flow of catalyst is directed from the catalyst reservoir directly to the reactor (Comardo). Moreover, the person having ordinary skill in the art of catalyst injection systems could have combined the individual elements of Erickson and Comardo to yield the catalyst injection system of Applicant's claim 7 with the results being entirely predictable – i.e. a mobile catalyst injection system being adapted to control the flow of catalyst through an outlet of the platform-coupled catalyst reservoir and directly to a fluid catalyst cracking unit. In this regard, Examiner notes that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. See *Leapfrog Enterprises Inc. v. Fisher-Price Inc.*, 82 USPQ.2d 1687 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, 82 USPQ.2d 1385, 1389 (U.S. 2007)).

Finally, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Erickson, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant

process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited.

23. With respect to claim 8, Erickson discloses a controller coupled to the platform and flow control device for controlling the catalyst dispensed from the catalyst reservoir (see Erickson, column 20, lines 56-68; and column 21, lines 1-9).

24. With respect to claim 10, Erickson discloses wherein the catalyst reservoir is movable relative to the platform (see Erickson, column 6, lines 7-9; and Fig. 3).

25. With respect to claims 11 and 12, Erickson discloses a plurality of load cells disposed between the catalyst reservoir and platform, as well as a sensor adapted to detect a metric indicative of catalyst dispensed from the catalyst reservoir (see Erickson, column 5, lines 46-56).

26. With respect to claim 17, Erickson discloses a mobile catalyst injection system further comprising a second catalyst reservoir coupled to the platform and adapted to be coupled to the fluid catalyst cracking unit (see Erickson, Fig. 3) (showing a second catalyst reservoir above catalyst storage tank (70)).

27. With respect to claim 26, Erickson discloses a method for process control in a resid hydrotreating unit comprising: (a) processing oil in a treating system having one

or more hard piped catalytic injection systems; (b) transporting a self contained mobile catalyst injection system to the treating system; (c) directly coupling the mobile catalyst injection to the treating system; and (d) injecting catalyst from the mobile catalyst injection into the treating system (see Erickson, Fig. 3).

Erickson does not disclose use of such a method for process control in a fluid catalytic cracking system.

However, Erickson discloses that his process can be carried out with many types of equipment, including as part of a reactor system that refines a petroleum feedstock in the presence of a fresh catalyst (see Erickson, column 3, lines 31-34; and column 6, lines 40-51).

Therefore, the person having ordinary skill in the art of catalyst injection systems at the time the invention was made would have been motivated to integrate the process of Erickson into a fluid catalytic cracking system in order to provide an improved means of catalyst handling.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in integrating the process of Erickson into a fluid catalytic cracking system because Erickson discloses the use of his process with many different types of catalyst systems (see Erickson, column 6, lines 40-51).

28. With respect to claim 27, Erickson discloses transporting a mobile catalyst injection by way of rail or truck (see Erickson, column 2, 36-39).

29. With respect to claims 28-30, Erickson discloses the electronic sensing and monitoring of the type and amount of catalyst being dispensed into the treating system (see Erickson, column 2, lines 31-35).

30. Claims 13-16, 31, 32, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson (US 4769127) in view of Haugen (US 2616591).

31. With respect to claim 13, Erickson discloses a mobile catalyst injection system comprising: (a) a transportable platform (56); (b) a catalyst reservoir (400) coupled to the platform (56) and configured to be coupled to a catalyst storage tank (68); (c) a flow control device (422) coupled to an outlet of the reservoir (400) and adapted to control the flow of catalyst through the outlet; wherein the transportable platform, catalyst reservoir, and flow control device comprise a self-contained mobile injection system (see Erickson, Fig. 3).

Erickson does not disclose wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit; or wherein the catalyst reservoir further comprises a plurality of compartments and a plenum disposed in the catalyst reservoir coupling the compartments.

However, Erickson discloses wherein the system may be included as part of a reaction process for the refining (e.g. by way of cracking) of a petroleum feedstock in the presence of a fresh catalyst (see Erickson, column 3, lines 31-34; and column 6, lines 40-51). In addition, the person having ordinary skill in the art of catalyst injection systems would easily recognize from a complete reading of Erickson that one could modify the system of Erickson in order to "control the flow of catalyst through the

reservoir outlet directly to [a] fluid catalyst cracking unit." Furthermore, Haugen discloses a dispensing device comprising a plurality of compartments (12, 13) and a plenum (17) disposed in the device and coupling the compartments. Haugen explains that the plurality of measuring devices (i.e. compartments) of his invention provides for a substantial time savings of delivering material by eliminating the need for separate measuring devices for separate ingredients (see Haugen, column 1, lines 10-16).

Moreover, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Erickson, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited; and (4) to eliminate the need for two catalyst reservoirs to deliver two types of catalyst.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in modifying the system of Erickson as described above because (1) all that is involved is the delivery of catalyst

directly from the catalyst reservoir (400) to the reactor of Erickson (i.e. without first delivering the catalyst to the catalyst storage tank (68)); and (2) both Erickson and Haugen are concerned with the handling and delivery of solid material.

32. With respect to claims 14, Haugen provides a dispensing device having two compartments substantially equal in volume (see Haugen, Figures 1 and 5).

33. With respect to claims 15, 16, and 32 Haugen does not contemplate the use of compartments of different sizes. However, the court has held that where the only difference between the prior art and the claims at issue is a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, then the claimed device is not patentably distinct from the prior art device. *See* Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984).

34. With respect to claim 31, Haugen discloses storing material in a first compartment of a dispensing device and storing material in a second compartment of a dispensing device (see Haugen, Figures 1 and 5).

35. With respect to claim 34, Haugen discloses dispensing material simultaneously from two different compartments (see Haugen, column 1, lines 19-21).

36. With respect to claim 35, it has been held that the selection of any order of mixing ingredients is *prima facie* obvious. *See* In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

37. Claims 19-21, 23-25, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andon (US 4082513) in view of Haugen (US 2616591).

38. With respect to claim 19, Andon discloses a mobile catalyst injection system comprising: (a) a trailer or container (i.e. bed of a "tank truck" or "tank car") (see Andon, column 2, lines 10-12); (b) a catalyst reservoir (i.e. holding area of the "tank truck" or "tank car") (see Andon, column 2, lines 10-12) coupled to the trailer and configured to be coupled to a fluid catalyst cracking storage tank (10); and (c) a flow control device (i.e. reservoir outlet port to be connected to fill valve (28)) coupled to an outlet of the reservoir and adapted to control the flow of catalyst through the outlet directly to the fluid catalyst cracking storage tank (10); wherein the trailer, catalyst reservoir, and flow control device comprise a self-contained mobile injection system.

Andon does not disclose wherein the catalyst injection system comprises a pressure control system coupled to the trailer and the catalyst reservoir; wherein the catalyst reservoir is configured to be coupled directly to a fluid catalyst cracking unit; and wherein a plurality of compartments and a plenum are disposed in the catalyst reservoir and coupling the compartments.

However, Andon discloses a pressure control system (column 2, lines 51-56) coupled to the trailer (see Andon, column 2, lines 11-12). Moreover, Andon discloses wherein a pressure control system (see Andon, drawing and accompanying text) is coupled to the catalyst storage tank (10) for controlling the pressure with the catalyst storage tank (10) and as a means of delivering catalyst to the downstream fluid catalyst cracking unit. Thus, the person having ordinary skill in the art of catalyst injection

systems would recognize that such pressure control system could likewise be coupled to the trailer and catalyst reservoir as a means of controlling pressure within the catalyst reservoir and delivering catalyst to the downstream fluid catalyst cracking unit. Likewise, the person having ordinary skill in the art of catalyst injection systems would easily recognize from a complete reading of Andon that one could bypass the catalyst storage tank (10) of Andon in order to "control the flow of catalyst through the reservoir [i.e. "tank truck" or "tank car"] outlet directly to the fluid catalyst cracking unit," e.g. by delivery of the catalyst from the catalyst reservoir to carrier line (19) and then directly to the fluid catalyst cracking unit (see Andon, drawing). In addition, Haugen discloses a dispensing device comprising a plurality of compartments (12, 13) and a plenum (17) disposed in the device and coupling the compartments. Haugen explains that the plurality of measuring devices (i.e. compartments) of his invention provides for a substantial time savings of delivering material by eliminating the need for separate measuring devices for separate ingredients (see Haugen, column 1, lines 10-16).

Moreover, there are several reasons why the person having ordinary skill in the art of catalyst injection systems would be motivated to make such a modification to the system of Andon, for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; (3) to realize a square-footage savings in plant area by not having to build

additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks might often be extremely limited; and (4) to eliminate the need for two catalyst reservoirs to deliver two types of catalyst.

Finally, the person having ordinary skill in the art of catalyst injection systems would have had a reasonable expectation of success in modifying the system of Andon as described above because: (1) all that is involved is a simple bypass of the catalyst storage tank (10) and addition hopper (16) of Andon to deliver catalyst directly from the catalyst reservoir to the carrier line (19) of Andon and then directly to the fluid catalyst cracking unit (see Andon, drawing and accompanying text); and (2) both Andon and Haugen are concerned with the handling and delivery of solid material.

39. With respect to claims 20 and 24, Haugen does not contemplate the use of compartments of different sizes. However, the court has held that where the only difference between the prior art and the claims at issue is a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, then the claimed device is not patentably distinct from the prior art device. *See* Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984).

40. With respect to claims 21 and 25, a mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *See* In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

41. With respect to claim 23, Haugen discloses a dispensing device having a plurality of compartments and a plenum disposed in the device and coupling the compartments (see Haugen, Figures 1 and 5).

42. With respect to claim 33, Andon discloses pressurizing the catalyst storage tank (10) for the delivery of catalyst to the fluid catalyst cracking unit (see Andon, column 2, lines 53-56).

Response to Arguments

43. Applicant's arguments filed 21 August 2007 have been fully considered, but they are not persuasive.

44. Examiner understands Applicant's principal arguments to be:

I. Andon expressly discloses a catalyst storage tank that is just capable of receiving catalyst from trucks or cars and fails to disclose a catalyst injection system that is mobile, configured to be coupled to a FCC unit, and is adapted to control the flow of catalyst directly to the FCC unit.

II. Erickson fails to disclose a catalyst injection system that is mobile, configured to be coupled to a FCC unit, and is adapted to control the flow of catalyst directly to the FCC unit.

III. The Office Action fails to demonstrate any suggestion or motivation to modify Andon's or Erickson's catalyst injection system to be mobile and/or to comprise a mobile catalyst injection system configured to be

coupled to and adapted to control the flow of catalyst to a FCC unit.

IV. Haugen only discloses open top measuring devices that does not and cannot deliver catalyst to a fluid catalyst cracking unit.

45. With respect to Applicant's first and second arguments, Examiner notes that Applicant has defined "fluid catalyst cracking unit" (or FCC unit) to mean a fluid catalyst cracking reactor or associated regenerator, but does not include storage tanks or hoppers of any kind for holding catalysts prior to being injected into a "fluid catalyst cracking unit." In this respect, Applicant's arguments are correct.

However, the claims at issue have been rejected under 35 U.S.C. 103 as being obvious over the prior art and not under 35 U.S.C. 102 as being anticipated by the prior art. In this regard, Examiner submits that Applicant's claims are obvious over Andon and/or Erickson as explained *supra* beginning at paragraph 9, because Applicant's limitations could be met by a simple modification of Andon's (or Erickson's) catalyst injection system. For example, Examiner finds that the *only* difference between Andon or Erickson and Applicant's claim 1 is that Andon and Erickson do not provide for "control[ling] the flow of catalyst through the [catalyst reservoir] outlet *directly* to the 'fluid catalyst cracking unit'" as "fluid catalyst cracking unit" has been defined by Applicant to specifically *exclude* catalyst storage tanks (e.g. storage tank 10 of Andon, or storage silo 68 of Erickson).

46. With respect to Applicant's third argument, and following in relation to Applicant's second argument, Examiner has identified several reasons why the person having

ordinary skill in the art of catalyst injection systems would have been motivated to modify the system of Andon or Erickson to yield a system "adapted to control the flow of catalyst through the [catalyst reservoir] outlet *directly* to [a] 'fluid catalyst cracking unit'", for example: (1) to realize a substantial capital cost savings by not having to build additional catalyst storage tanks to hold additional (i.e. different) types of catalysts; (2) to realize additional savings in labor and/or materials by saving plant process operators from having to empty the catalyst storage tank into bulk containers, and clean and flush the catalyst storage tank prior to being filled with a different type of catalyst; and (3) to realize a square-footage savings in plant area by not having to build additional storage tanks to hold additional (i.e. different) types of catalyst – an especially important consideration for older refineries and chemical plants where available plant space to house additional (large) catalyst storage tanks is often extremely limited.

47. With respect to Applicant's fourth argument, Examiner notes that none of Applicant's claims have been rejected on the basis of Haugen alone. Rather, Examiner has used Haugen in *combination* with either Andon or Erickson to serve as the basis for a finding of obviousness. In this regard, Applicant has not addressed the *combination* of references as argued by Examiner for support of the obviousness rejections.

One cannot show nonobviousness by attacking references individually where the rejections are based on *combinations* of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this regard, Examiner notes that both Andon and Erickson disclose *closed-top* catalyst reservoirs.

Conclusion

48. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

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